

REMARKS

Initially, applicant would like to thank Examiner Krause for the discussion he had with applicant's representative on November 15, 2006, in conjunction with the present application and the Office Action of August 17, 2006. During the discussion, however, no agreement was reached. This Amendment-C is being filed along with a Request for Continued Examination.

Upon entry of the present Amendment-C, the claims in the application are claims 1, 3-5 and 7-13, of which claims 1 and 4 are independent. Claim 1, 3, 4 and 8-11 have been amended by the present amendment. New claims 12 and 13 have been added. Claims 2 and 6 have been cancelled without prejudice and without dedication or abandonment of the subject matter thereof.

The above-identified Office Action has been reviewed, the applied references carefully considered, and the Examiner's comments are carefully weighed. In view thereof, the present Amendment-C is submitted. It is contended that by the present amendment, all bases of rejection set forth in the Office Action have been traversed and overcome. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

In the above amendments: claims 1 and 4 has been amended by incorporating subject matter of claims 2 and 6 (now cancelled), respectively. Claims 1 and 4 have also been amended for consistency.

Claim 3 has been amended to depend from claim 1. Claims 8-11 have been amended for consistency in view of the amendment to claims 1 and 4.

New claims 12 and 13, which depend from claims 1 and 5, respectively, have been added to define additional aspects of the claimed invention.

Applicant respectfully submits that the above amendments including new claims are fully

supported by the original disclosure including the drawings, and that no new matter is introduced into the application by amending the claims and addition of new claims, since all of the subject matter thereof was expressly or inherently disclosed in the original claims, specification and drawings. For example, with reference to new claims 12 and 13, the rotational directions of the vibratory shafts are shown in Figs. 2A and 2B of the original drawings.

Claim Rejections – 35 USC §103

1. At item 2 of the Office Action (page 2), the Examiner rejected claims 1-7 under 35 USC §103 (a) as being unpatentable over Riedl (US 5,010,778) in view of Sandstrom (US 4,647,247).

Applicant's response:

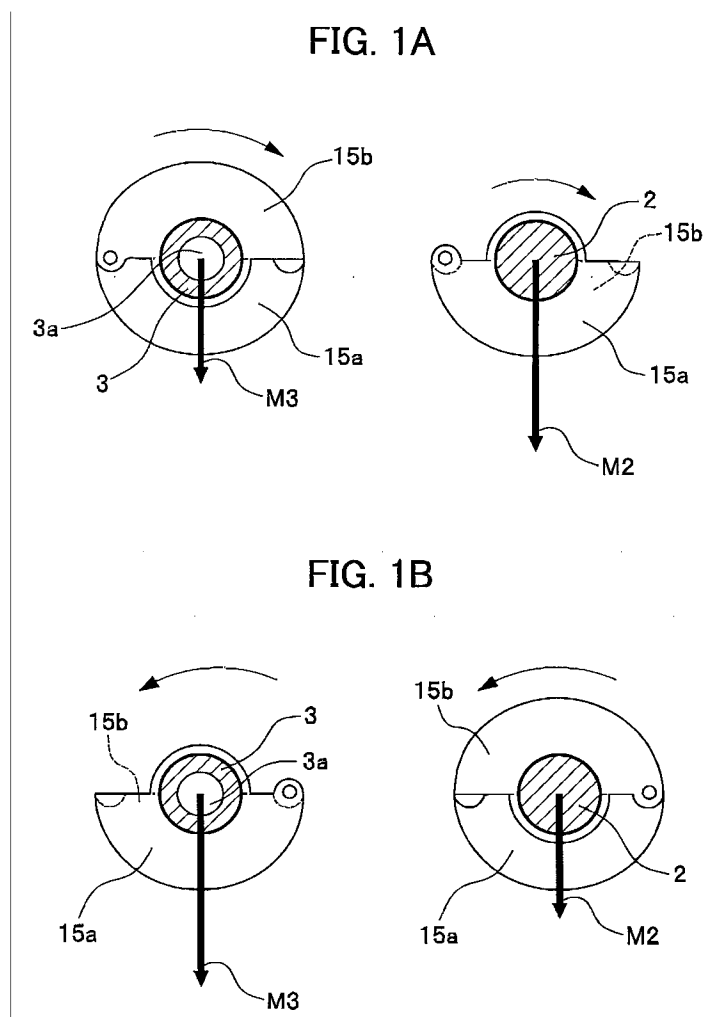
Upon careful consideration and in light of the above amendments, applicant respectfully submits that the rejection is overcome, and that each of claims 1, 3-5 and 7 is patentably distinct over the disclosures of Reidl and Sandstrom for several reasons, including the reasons provided in previous Amendment-B of June 6, 2006 in relation to anticipation rejection of claims 1-7 by Reidl, which are not overcome by additional teachings of Sandstrom as discussed.

Initially, applicant respectfully submits that the claimed invention as recited in claim 1 cannot be achieved by simply combining disclosures/teachings of Reidl and Sandstrom, as proposed by the Examiner, because these disclosures, considered either singly or in combination, fail to suggest/teach several required features of the claimed invention. The required claimed features which are not taught by these references are discussed herein with reference to the illustrations provided below.

For example, the following illustrative Figs. 1A and 1B – which are constructed based on Examiner's proposed hypothetical modification of Reidl in view of Sandstrom – are explanatory

views in which direction and degree of the eccentric moment acting on each vibratory shaft 2 and 3 is indicated by vectors M_2 , M_3 , respectively.

A positional relationship of eccentric weights, i.e., fixed eccentric weight 15a and rotatable eccentric weight 15b is represented by Figs. 1A and 1B when each of the vibratory shafts 2 and 3 of the Reidl is rotated in the same direction as taught by Sandstrom. In the Fig. 1A, each of the vibratory shafts is rotated in clockwise direction; and in Fig. 1B, each of the vibratory shafts is rotated in anti-clockwise direction.



It can be seen from Fig. 1A that when the vibratory shaft 2 and 3 are rotated in a clockwise direction, the eccentric moment M_2 (e.g., obtained by adding eccentric moments of fixed eccentric

weight 15a and rotatable eccentric weight 15b) achieved by the vibratory shaft 2 is larger than the eccentric moment M3 (e.g., obtained by subtracting an eccentric moment of fixed eccentric weight 15a from an eccentric moment of rotatable eccentric weight 15b) achieved by the vibratory shaft 3.

Further, as can be seen from Fig. 1B, when the vibratory shafts 2 and 3 are both rotated in counter-clockwise direction, the eccentric moment M2 (e.g., obtained by subtracting an eccentric moment of fixed eccentric weight 15a from an eccentric moment of rotatable eccentric weight 15b) achieved by the vibratory shaft 2 is smaller than the eccentric moment M3 (e.g., obtained by adding eccentric moments of fixed eccentric weight 15a and rotatable eccentric weight 15b) achieved by the vibratory shaft 3.

In other words, rotating the vibratory shafts 2, 3 in a clockwise direction results in $M2 > M3$; whereas, rotating the vibratory shafts 2, 3 in a counter-clockwise direction results in $M2 < M3$. Thus, the eccentric moment of the vibratory shafts changes according to the direction of rotation.

Accordingly, since the combination of Reidl and Sandstrom, as proposed by the Examiner, produces unequal eccentric moments, i.e., $M2 > M3$, $M2 < M3$, the proposed modification fails to teach a vibratory roll which vibrates in all radial directions when the first and second vibratory shafts rotate in one direction, as required by claim 1. According to the claimed invention, the roll vibrates in all radial directions when the vibratory shafts are rotated in one (e.g., clockwise) direction. This characteristic of the claimed invention is explained in detail in Fig. 4, and discussion thereof, of the originally filed specification.

Based on foregoing, therefore, the roll equipped with vibratory shafts 2 and 3, such as that of Reidl, cannot produce a standard vibration, i.e., a vibration in which the vibratory roll vibrates in all radial directions thereof, as required by claim 1, even though both the vibratory shafts are rotated in same direction (either clockwise or counter-clockwise direction), as taught by Sandstrom.

Further, the roll of the proposed combination as illustrated in the Figs. 1A and 1B cannot achieve the claimed switching between the standard vibration and horizontal vibration even if the rotation direction of the vibratory shafts is changed from one (clockwise) to the reverse (counter-clockwise) direction.

Another positional relation of eccentric weights, i.e., fixed eccentric weights of the vibratory shafts of Sandstrom as adopted in Reidl are represented by Figs. 2A and 2B, which are constructed based on the Examiner's proposed hypothetical modification of Reidl in view of Sandstrom.

FIG. 2A

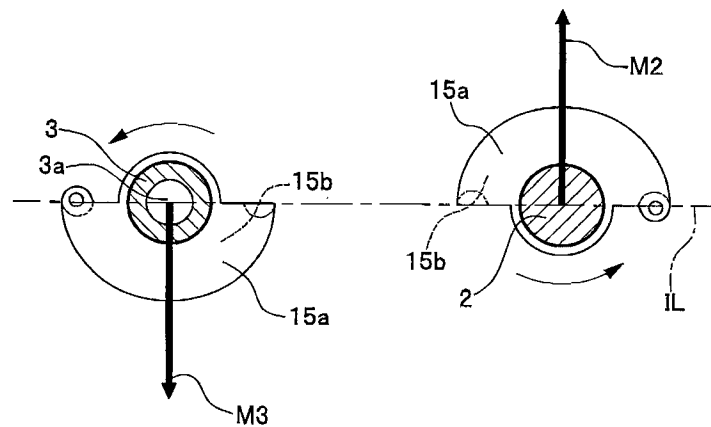
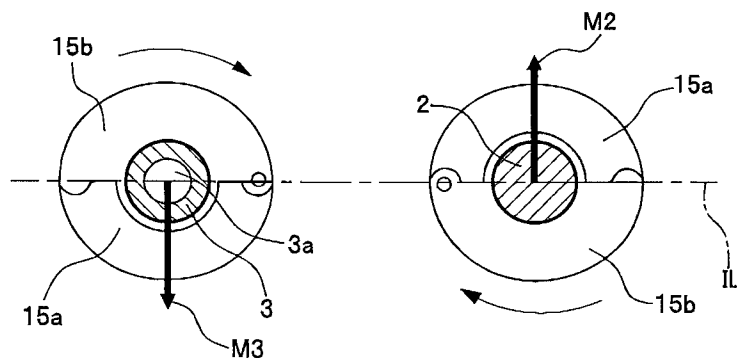


FIG. 2B



In other words, as shown in Figs. 2A and 2B, the fixed eccentric weight 15a of the vibratory shaft 3 and the fixed eccentric weight 15a of the vibratory shaft 2 are positioned at opposite side

across an imaginary line IL which connects the centers of each of the vibratory shafts 2 and 3.

It can be seen from Figs 2A and 2B, that the eccentric moments M_2 and M_3 , having substantially similar magnitude, act on the vibratory shafts 2 and 3, respectively. That is $M_2 = M_3$. Thus, the roll equipped with the vibratory shafts 2 and 3 therein always produces the horizontal vibration, i.e., vibration caused by the vibratory roll vibrating in the direction tangential to the circumference of the vibratory roll, irrespective of the rotational direction of the vibratory shafts.

Therefore, as shown in the Figs. 2A and 2B, the eccentric moment acting on each vibratory shaft causes the horizontal vibration irrespective of the rotation direction of the vibratory shafts, and thus, the claimed switching between the standard vibration and the horizontal vibration can not be achieved even if rotation direction of vibratory shafts 2 and 3 is changed, e.g. from clockwise direction to counter-clockwise direction. Conversely, in the claimed invention, horizontal vibration is achieved when rotation direction of the vibratory shafts is changed, e.g., from one (clockwise) direction to the reverse (counter-clockwise) direction.

Based on the foregoing, applicant respectfully submits that the combination of the disclosures of Reidl and Sandstrom, as proposed by the Examiner, fails to achieve the claimed invention, as recited in amended claim 1.

With regard to claim 3, applicant notes that Reidl discloses that respective rotatable eccentric weights of the first vibratory shaft and second vibratory shaft are allowed to rotate around the first vibratory shaft and the second vibratory shaft, respectively, within limits of 0 and 180°.

Applicant respectfully submits that, however, Reidl fails to disclose that the eccentric moment around the first vibratory shaft of the fixed eccentric weight is substantially the same as the eccentric moment around the second vibratory shaft of the rotatable eccentric weight, and the eccentric moment around the first vibratory shaft of the rotatable eccentric weight is

substantially the same as the eccentric moment around the second vibratory shaft of the fixed eccentric weight, as required by claim 3.

Further, applicant respectfully submits that in the claimed invention, the positional relation and size etc. of each eccentric weight have been determined such that the eccentric moment around the vibratory shaft 2 of the fixed eccentric weight 15a is substantially the same as the eccentric moment around vibratory shaft 3 of the rotatable eccentric weight 15b; and the eccentric moment around vibratory shaft 2 of the rotatable eccentric weight 15b is substantially the same as the eccentric moment around the vibratory shaft 3 of the fixed eccentric weight 15a.

Therefore, applicant respectfully submits that the proposed combination of the disclosures of Reidl and Sandstrom, fails to disclose the claimed invention as recited in claim 3.

Applicant also respectfully submits that the applied references, considered either singly or in combination, fail to disclose the features of claim 4 for the reasons provided in relation to claim 1. Applicant also respectfully submits that the applied references fail to teach limitations of claims 5-11 for the reasons provided in relation to claims 1 and 4, hereinabove.

For all of the foregoing reasons, applicant requests reconsideration and withdrawal of the rejection of claims 1, 3-5 and 7 under 35 USC §103(a).

2. At item 3 of the Office Action (page 6), the Examiner rejected claim 7 under 35 USC §103 (a) as being unpatentable over Riedl (US 5,010,778) as modified by Sandstrom (US 4,647,247), and in further in view of Fuchigami (US 4,108,009) or Orzal (US 4,568,218).

Applicant's response:

Upon careful consideration and in light of the above amendments, applicant respectfully submits that the rejection is overcome, and that claim 7 is patentably distinct over the applied references for the reasons provided in relation to claim 1 herein above, which are not overcome by

addition teaching of Fuchigami and/or Orzal, and for the reasons provided in previously filed Amendment-B of June 6, 2006, regarding deficiencies of Fuchigami and Orzal relative to the claimed invention.

For all of the foregoing reasons, applicant requests reconsideration and withdrawal of the rejection of claim 7 under 35 USC §103(a).

3. At item 7 of the Office Action (page 8), the Examiner rejected claims 8-11 under 35 USC §103 (a) as being unpatentable over Riedl as modified by Sandstrom in view of Balz (US 4,461,122).

Applicant's response:

Upon careful consideration and in light of the above amendments, applicant respectfully submits that the rejection is overcome, and that claims 8-11 are patentably distinct over the applied references for the reasons provided in relation to claims 1 and 4 herein above, which are not overcome by addition teachings of Balz, and for the reasons provided in previously filed Amendment-B of June 6, 2006, regarding deficiencies of Balz relative to the claimed invention.

For all of the foregoing reasons, applicant requests reconsideration and withdrawal of the rejection of claims 8-11 under 35 USC §103(a).

Other Matters

The additional references cited by the Examiner on the form PTO-892 included with the Office Action – US Patents: 4,342,523 to Salani; 3,415,174 to Kaltenecker; and 3,435,741 to Mazdzanowski – have been considered by applicant. However, applicant respectfully submits that the additional references fail to overcome the deficiencies of the applied references, as discussed in relation to the present claims hereinabove.

New claims 12 and 13 are believed to be patentably distinct over the references of record for the reasons provided in relation to claims 1 and 4.

Conclusion

In conclusion, applicant has overcome the Examiner's objection and rejections as presented in the Office Action; and moreover, applicant has considered all of the references of record, and it is respectfully submitted that the invention as defined by each of present claims 1, 3-5 and 7-13 is patentably distinct thereover.

Applicant respectfully submits that all of the above amendments including new claims are fully supported by the original specification and drawings. Applicant also respectfully submits that the above amendments and new claims do not introduce any new matter into the application.

If the Examiner is not fully convinced of all of the claims now in the application, applicant respectfully requests that he telephonically contact applicant's undersigned representative to expeditiously resolve prosecution of the application.

Favorable reconsideration is respectfully requested.

Respectfully submitted,



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